think a vaſt quantity would be conducted in a ſhort time, either to or from a cloud, to reſtore its equilibrium with the earth, by means of a very ſmall wire; and therefore thick rods ſhould ſeem not ſo neceſſary.—However, as the quantity of lightning diſcharg'd in one ſtroke cannot well be meaſured, and, in different ſtrokes, is certainly very various, in ſome much greater than others; and as iron (the beſt metal for the purpoſe, being leaſt apt to fuſe) is cheap, it may be well enough to provide a larger canal to guide that impetuous blaſt, than we imagine neceſſary: For, though one middling wire may be ſufficient, two or three can do no harm. And time, with careful obſervations well compar'd, will at length point out the proper ſize to greater certainty.

Pointed rods erected on edifices may likewiſe often prevent a ſtroke, in the following manner. An eye ſo ſituated as to view horizontally the under ſide of a thunder cloud, will ſee it very ragged, with a number of ſeparate fragments, or petty clouds, one under another, the loweſt ſometimes not far from the earth. Theſe, as ſo many ſtepping-ſtones, aſſiſt in conducting a ſtroke between the cloud and a building. To repreſent theſe by an experiment, take two or three locks of fine looſe cotton, connect one of them with the prime conductor by a fine thread of two inches, (which may be ſpun out of the ſame lock by the fingers) another to that, and the third to the ſecond, by like threads.—Turn the globe, and you

will ſee theſe locks extend themſelves towards the table, (as the lower ſmall clouds do towards the earth) being attracted by it: But on preſenting a ſharp point erect under the loweſt, it will ſhrink up to the ſecond, the ſecond to the firſt, and all together to the prime conductor, where they will continue as long as the point continues under them. May not, in like manner, the ſmall electriſed clouds, whoſe equilibrium with the earth is ſoon reſtor'd by the point, riſe up to the main body, and by that means occaſion ſo large a vacancy, as that the grand cloud cannot ſtrike in that place?

Theſe thoughts, my dear friend, are many of them crude and haſty; and if I were merely ambitious of acquiring ſome reputation in philoſophy, I ought to keep them by me, till corrected and improved by time and farther experience. But ſince even ſhort hints, and imperfect experiments in any new branch of ſcience, being communicated, have oftentimes a good effect, in exciting the attention of the ingenious to the ſubject, and ſo become the occaſion of more exact diſquiſitions, and more compleat diſcoveries. You are at liberty to communicate this paper to whom you pleaſe; it being of more importance that knowledge ſhould increaſe, than that your friend ſhould be thought an accurate philoſopher.

BENJAMIN FRANKLIN *Experiments and Observations on Electricity* LONDON, 1751 THE WARNOCK LIBRARY Octavo